

2/06/2024

FEBRUARY 2022

M	T	W	T	F	S	S
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28						

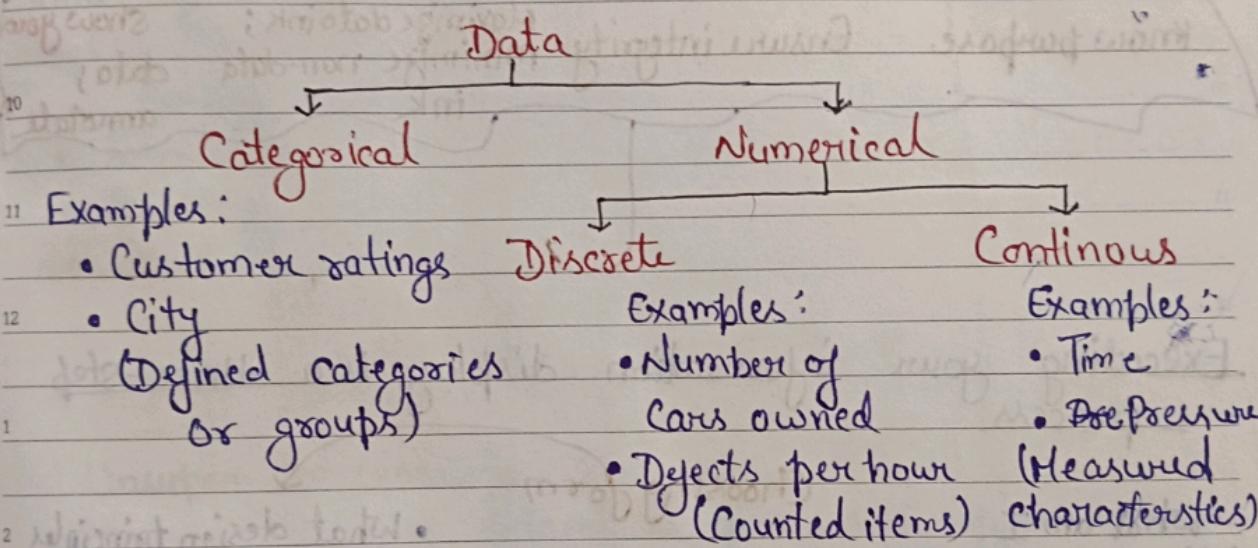
FRIDAY  
JANUARY 2022

21

WEEK 04  
021-344

## Introduction to Data Visualization

### Types of Data



### Benefit of visual representation of data

- Communicate complex information concisely and powerfully.
- Create a "picture" for reasoning about and analyzing quantitative and conceptual information.
- Makes cognitive processing easier
- Provides "content/information" view at a glance
- Directs attention toward the content rather than methodology.
- Describe, explore, summarize a set of numbers
- Convey a message about the significance of data.

22

SATURDAY

2022 JANUARY

WEEK 04  
022-343

2021 DECEMBER						
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## Four "Umbrella" principles of effective visualization

Know purpose

Ensure integrity

Maximize data ink;  
minimize non-data  
ink

Show your  
data;  
annotate?

Executing your information display is a three-step process

Choosing form

- What am I trying to communicate?
- What is the message?
- How do I make that message clear?
- Should I use text, table, graph or a diagram?
- Or a combination?

• What design principle lead to quick cognitive processing and effective communication of the message?

Creating design

Defining Message

Defining the Message

2021 DECEMBER

25

TUESDAY

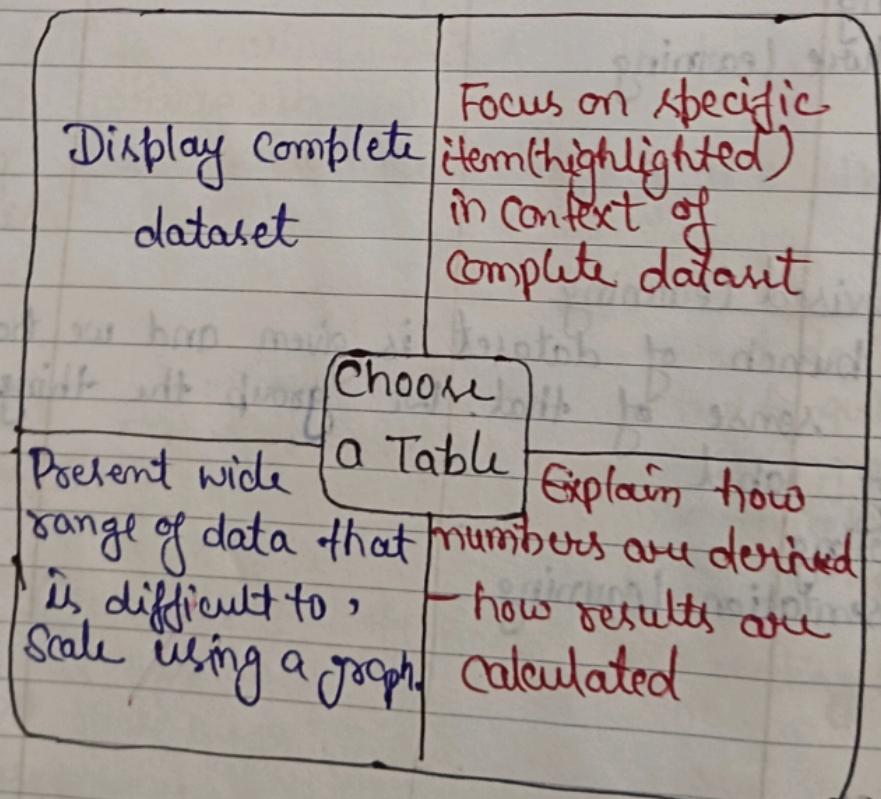
2022 JANUARY

WEEK 05  
025-340

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Choosing form - Best Practices

One key decision to make is whether to display the data as a table or a chart.

Choosing Form - Table or Chart?

CEMBER

FEBRUARY 2022

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WEDNESDAY  
JANUARY 2022

26

WEEK 05  
026-339

Compare a slice of information

Show "cause of change" (vertical axis) vs. "effect" (horizontal axis)

Choose a chart

Show change over time

Show patterns of data distribution (normal curve)

Choose appropriate graph type for message

Components of one item

— Pie chart

Components of multiple items

— 100% column/stacked column chart

Item comparison

— Bar chart

Change over time

— Column/line chart

Frequency, distribution

— Histogram

Correlation

— Paired bar, scatter dot

27

THURSDAY  
2022 JANUARYWEEK 05  
027-338Creating Designs

2021 DECEMBER

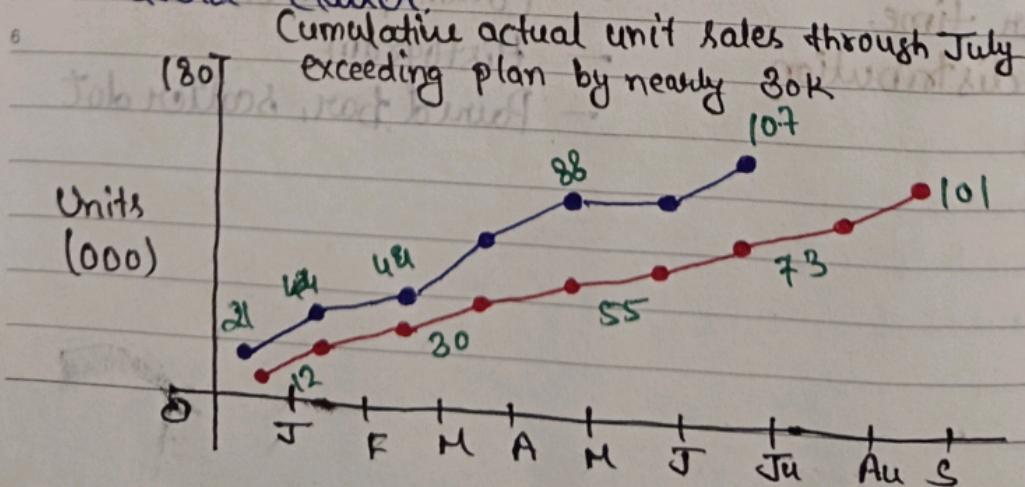
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Creating Design - Best Practices

- Avoid 3-D effects
- Avoid legends; consider using labels
- Avoid contrasting borders around objects
- Use annotations to highlight key data changes or to focus on specific data points.

Graphs: Best practices lead to uncluttered look

- Design graph to support message;
- Use minimal grid lines, ideally none
- Use thin lines, thin axes, thin bars, thin arrows to show trends
- Display subtitle but visible data point marks - only enough to show trends
- Use minimal tick marks to display scale; usually just min/max on Y axis
- Label axes; label graphic items
- Opt for value labels wherever possible; delete some to avoid clutter.



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FRIDAY  
JANUARY 2022

28

WEEK 05  
028-337

## Dashboard - Definition

A visual display of the most important information needed to achieve one or more objectives that has been consolidated on a single screen so it can be monitored and understood at a glance.

## Basic Dashboard design principle

1. Scan the big picture
2. Zoom in on important specifics
3. Link to supporting details

FEBRUARY